



**SECOND ANNUAL
DOD ACQUISITION INSIGHT DAYS**
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Reducing Acquisition Cycle-Time in Technology Insertion

**Mr. John L. Bliss, SES, Deputy Director
Office of the Secretary of Defense Studies and
Federally Funded Research and Development
Centers**

**Lt Gen John L. Hudson, Commander, Aeronautical
Systems Center**

**Lt Gen Mark D. Shackelford, Principal Military
Deputy to the Assistant Secretary of the Air Force
for Acquisition**

**Lt Gen (Retired) Stewart Cranston, Former Vice
Commander, Air Force Materiel Command**



Issues in Reducing Acquisition Cycle-Time in Technology Insertion

DoD Acquisition Insight Days
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*Gary R. Bliss
Acquisition Resource and Analysis
Office of the Under Secretary of Defense for
Acquisition, Technology and Logistics
(703) 845-2192
gary.bliss@osd.mil*



Resource reality

- ▶ Supplementals budgets create a distorted DoD resource allocation mechanism
 - There are two categories of funding: ones that directly compete with other uses internally in DoD, and ones that do not
 - No true programming and budgeting mechanism
 - Unreasonable to expect this to be a durable mechanism, even if active operations continue
- ▶ Demographics trends are ominous; positively scary, actually
 - By any measure, the next eight year administration will **not** avoid facing painful entitlement vs. resources choices
 - DoD remains the majority of discretionary spending
 - Investment have traditionally been a bill payer
- ▶ DoD officials will have extremely difficult choices



How does DoD acquire “new” capability?

- ▶ Three models from a acquisition management point-of-view:
 - **New platform:** the acquisition process we know and love
 - **Upgrades/rebuilds:** dancing with the girl you brought to the prom
 - **Crash implementation:** rush a new platform or upgrade to fleet
- ▶ Observation: New platform acquisitions are getting rare
 - Unless a qualitative capability jump is available, platforms often remain in inventory for generations; Helo “franchises” show no sign of declining
 - Resource scarcity will almost certainly raise the bar further
- ▶ Fielding relatively cheap, more quickly available, additional capability to the force *will* be in demand

In the new environment, the premium is on Responsiveness



MRAP: Doing everything wrong but satisfying the troops and saving lives

- ▶ *Brand X* surprises us with an unanticipated threat
- ▶ Acquisition system responds by getting capability quickly to field
 - Parallel programs/approaches
 - Little attention to logistical and configuration implications; financed through supplemental mechanism (with all that implies)
 - Testing & design being made against evolving threat
- ▶ Result is a program that:
 - Complicated other guys problem: an evolving and diversified counter to the asymmetric threat
 - Brought in a number of technical and industrial assets to bear on an unusual DoD threat
 - Likely will not be the basis for long-term inventory support,

Responsiveness — Agility — is the value proposition in MRAP-style acquisitions



What does it take to be truly “Agile”

- ▶ Objective: have entire value chain striving for common goal
 - Adaptively and responsively adjusting to and overcoming “chaos”
 - Inevitably, decision loops — “OODA” — must be expedited in a coherent way to achieve the enterprise’s goals
- ▶ What are the necessary and sufficient conditions for this?
 - Management that delegates discretion proper to overcome problems
 - Interfaces that promote rapid problem solving through OODA
 - Correct incentives to make decision-makers respond
- ▶ All of these conditions are managerial and cultural; none of them are available “in a bottle”
 - IT systems may help Or hurt
 - Metrics may do the same
 - Done correctly, the enterprise “easily” *scales*; and the converse



“Agile” Management Principles:

- 1. *Mutual trust* - that which converts a mob into a team**
- 2. *Intuitive competence* in complex circumstances . . .
“competence in chaos”**
- 3. *Implicit contract* between superior & subordinate completely understood**
- 4. *Strategic direction*, actionable & fully understood throughout organization**

Boyd argues that these four principles are sufficient to assure “agile” performance



Bad News; an acid test

- ▶ **Are Air Force programs constantly being surprised in execution? “yes” . . . What does this say about the organization?**
 - **Treatment of bad news reflects how an organization handles principles 1 & 3**
- ▶ ***Bad* news is vastly more valuable than good**
 - **Early recognition maximizes response flexibility**
 - **This is *not* just an information system limitation**
- ▶ **Reward those that bring it quickly**
 - **There is a real skill to anticipation; reward it**
 - **Encourage “useful” paranoia to *seek* the latent problems**



What makes a “good” interface?

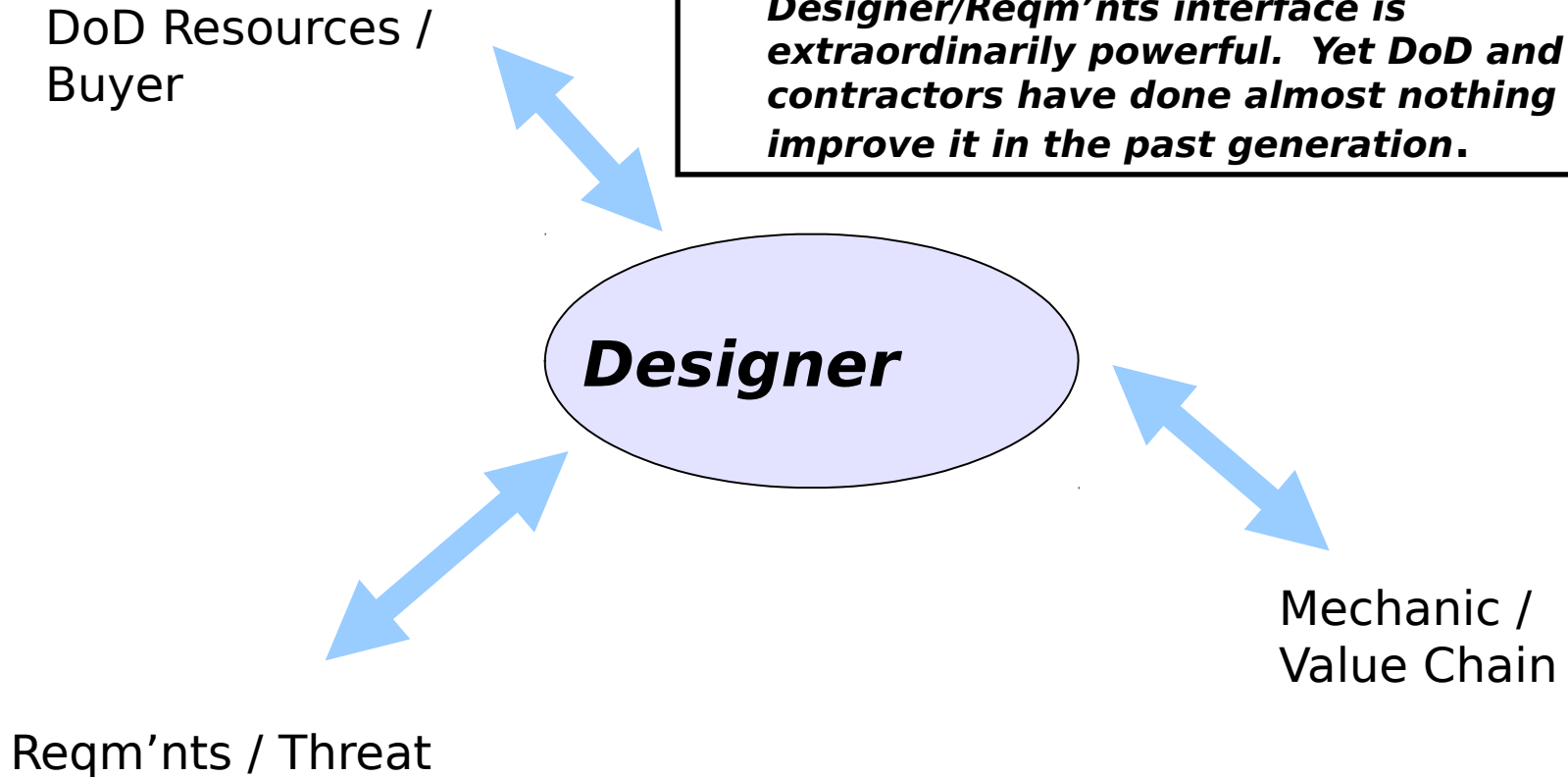
- ▶ Five attributes:
 - Accurate
 - Unambiguous
 - Timely
 - Sufficient for situational awareness of **both parties**
 - Reliable
- ▶ From the point of view of your enterprise, the interfaces **are** the environment
 - Always evaluate your management systems from the point of view of the situational awareness that the interfaces give any participant
- ▶ “Transparency” is the goal; parties on each end of the interface should see exactly the same picture



What is an “Agile Enterprise”?

The Designer Interfaces

Leverage, in a life cycle sense, of improving Designer/Reqm'nts interface is extraordinarily powerful. Yet DoD and contractors have done almost nothing to improve it in the past generation.

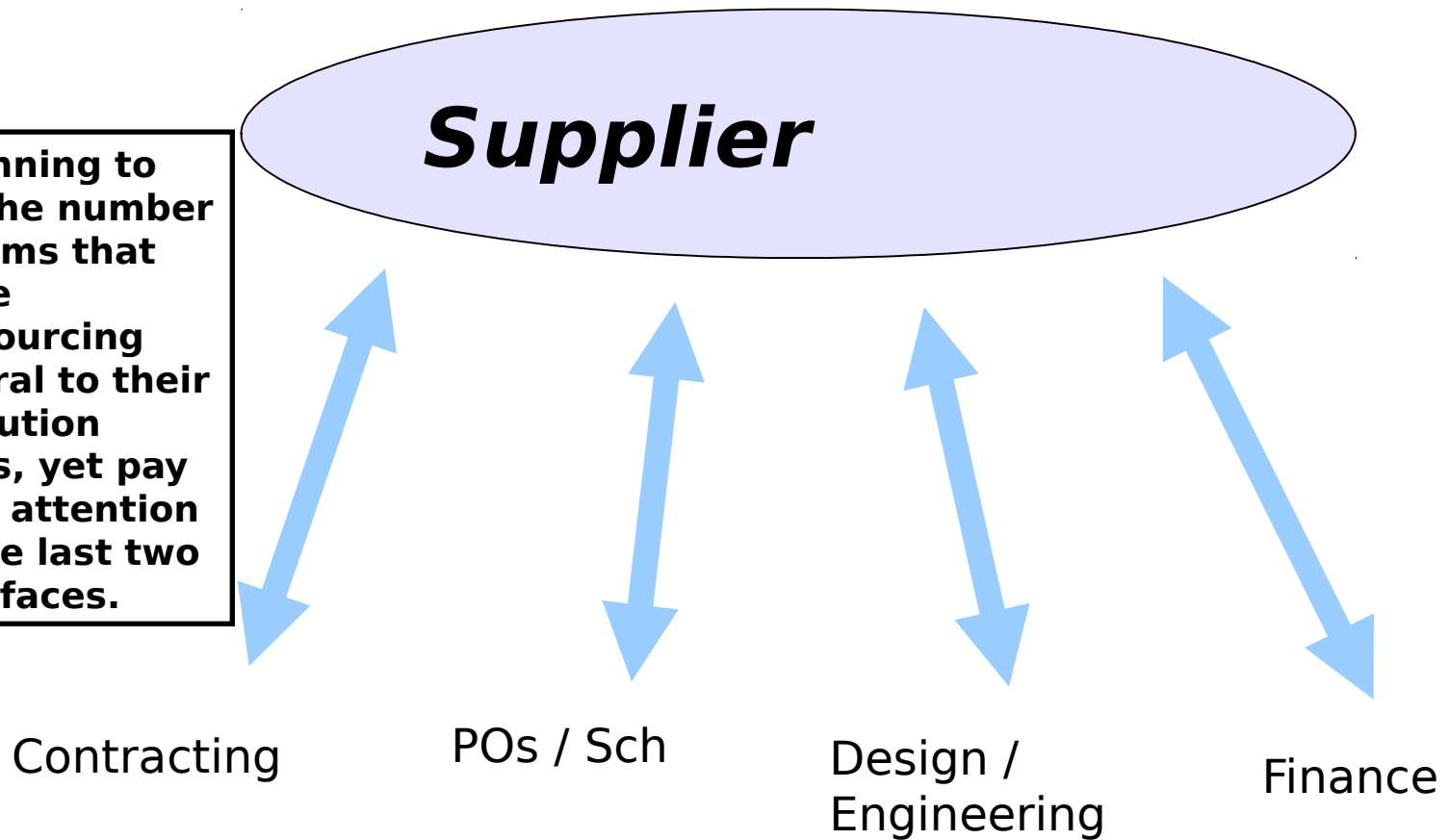




What is an “Agile Enterprise”?

The Supplier Interfaces

It is stunning to me the number of firms that make outsourcing central to their execution plans, yet pay little attention to the last two interfaces.

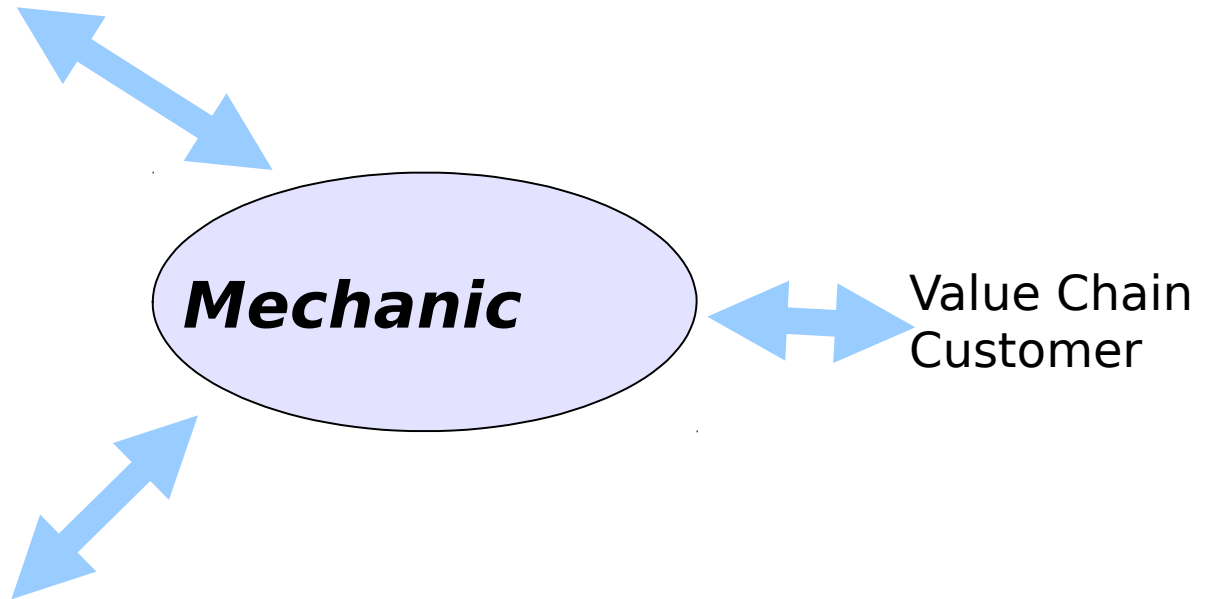




What is an “Agile Enterprise”?

The Mechanic Interfaces

Tangible:
Parts



Intangible:
Design & Engineering

Don't get me started on this interface . . .



Incentives: the magic elixir that turns situational awareness into results

- ▶ Everyone's problem facing the desk in the morning: what should I do *first*?
 - Worst answer: "Ah, the thing that my boss can least criticize me for."
 - If the answer to that question is not obvious to management, what kind of enterprise results do you expect?
- ▶ All God's children have customers
 - *They* are the only source of true value establishment
 - Metrics should be selected from the view of the customers
 - Ultimate metric: contribution to delivering value to war fighter
- ▶ Metrics: the double-edged sword
 - You get what you measure
 - Problems are always morphing . . . So should metrics



Lessons from Toyota's "Pull" system

- ▶ It works, but:
 - Very little data
 - Very little communication
 - Almost *no* scheduling or planning system
- ▶ Answer to value chain coordination problem is not "in a box", but rather comes from clear-eyed thinking about the value chain
 - In particular, comprehensive, all-knowing, top-down, ERPs are not a substitute to understanding how your value chain should work
- ▶ We can't design and build most defense products entirely on the Pull system; what should we learn from it?
 - The right data, though very little of it, can be a satisfactory interface
 - Empowering decision-making, incentives, and cultural issues are more important as management "tools"



Get off the stage, Gary

- ▶ We are entering a rocky, uncertain, period.
 - Resources and requirements are likely to constantly surprise us with challenges
- ▶ The Air Force — and DoD generally — will still spend a considerable amount of resources for products and services.
 - The real question is, what will we get for our money?
 - Current DoD-contractor relationships, predicated on the MDAP acquisition model, are almost certain to fail to be responsive
 - Changes are needed in our interfaces to achieve more responsive outcomes
- ▶ Structuring the DoD enterprise for agility in responding to rapidly developing and constantly changing environment is . . . At *least* as important as investing new technology



Backup



Gary's MBA in a brief case

- ▶ Richards, Chet, ***"Certain to Win"***, A somewhat heavy-handed and ponderous application of Maneuver Warfare principles to business enterprise management; worth the effort to learn.
- ▶ Tufte, Edward R., ***"The Visual Display of Quantitative Information"*** Winning in business communications by maximizing the information-to-toner ratio; set your message apart by using these rules.
- ▶ Lewis, Michael, ***"Moneyball: The Art of Winning an Unfair Game"***, When it comes to metrics, the conventional wisdom is almost always wrong; learn how the best disassociate emotion in managing an extremely involving enterprise.



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Aeronautical Systems Center

Dominant Air Power: Design For Tomorrow...Deliver Today

Dominant Air Power: Design For Tomorrow...Deliver Today



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Agility in Acquisition 22 Apr 09

**Lt Gen Jack Hudson
ASC/CC**

DSN: 785-5714

**john.hudson@wpafb.af.
mil**



Agility in Acquisition



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Dominant Air Power: Design For Tomorrow...Deliver Today

- **Money & people drive the acquisition engine**
- **Requirements, statute, regulation, and policy bound it**
- **Agility requires a “ready capability” to adapt to a new, different, or changing environment quickly and resourcefully**



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Deterrents to Agility

“A Ready Capability to Adapt”

Dominant Air Power: Design For Tomorrow...Deliver Today



- **Time pressure**
- **Lack of resources (people / money)**
- **Conflicting guidance**
- **Multiple oversights**



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Approaches to Agility

Dominant Air Power: Design For Tomorrow...Deliver Today

- **Problem:** In programmatic terms we are often on the resource “critical path” - i.e. no flex
 - By schedule/cost, OR
 - By people, OR
 - Both (new work rarely if ever comes with money & billets for people)
- **Mitigation:**
 - Delegation of authority to qualified people
 - Timely and accurate reporting
 - Prioritized work from MAJCOM & Air Staff
 - In a “zero sum” game something must give
 - Clear direction to industry
 - Realistic expectations communicated to all stakeholders
 - Stability helps (people and dollars)
 - Maybe 80% or 90% is good enough!

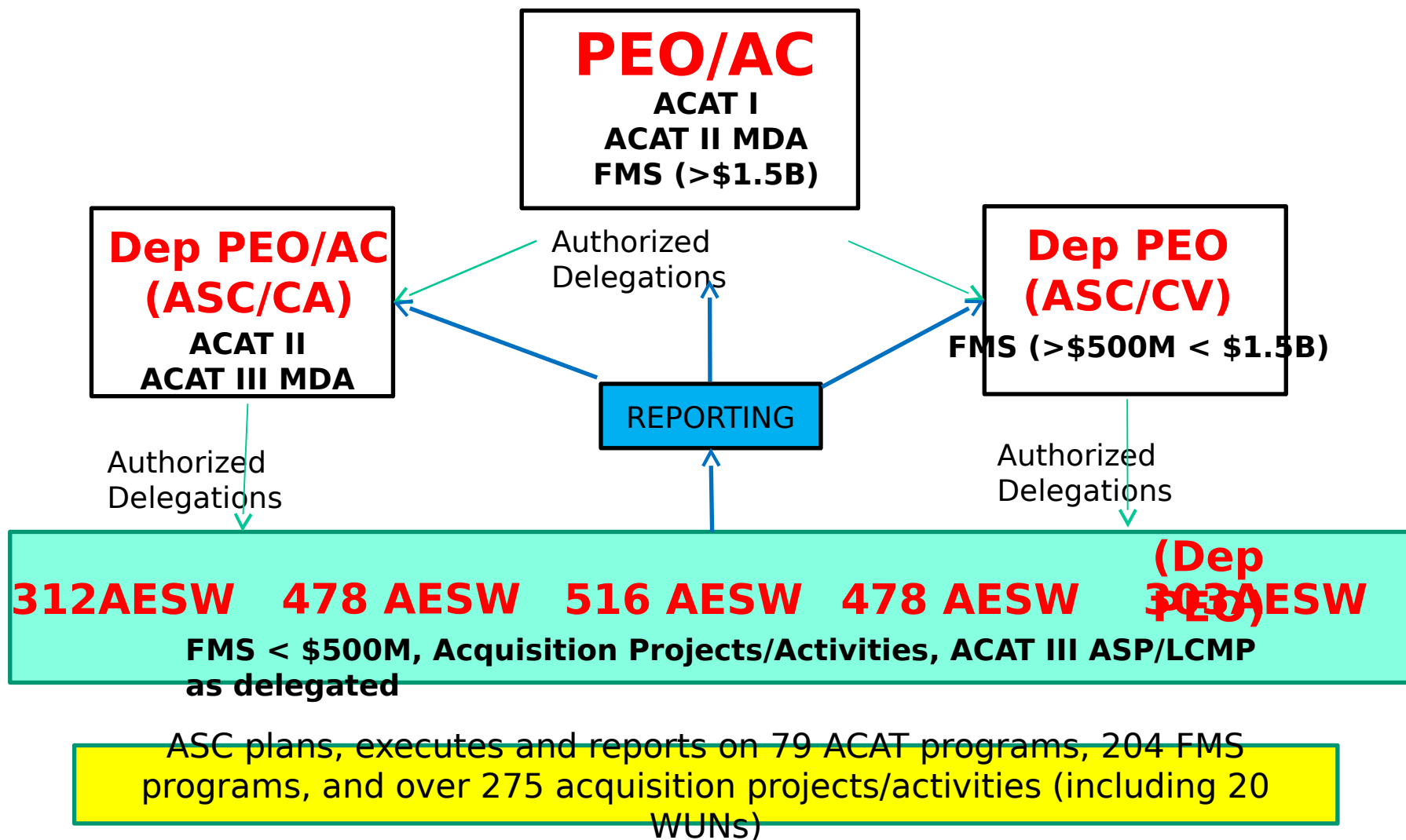


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Balanced Acquisition Oversight



Dominant Air Power: Design For Tomorrow...Deliver Today



Headquarters U.S. Air Force

Integrity - Service - Excellence

DoD Acquisition Insight Days **Reducing Acquisition Cycle Time in** **Technology Insertion**



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Lt Gen Mark Shackelford
Military Deputy to the
Assistant Secretary of the
Air Force (Acquisition)

22 Apr 09



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Initial Thoughts

- **Getting there faster...be careful what you ask for**
- **A few questions to consider:**
 - **What is your tolerance for failure, eg., MRAP?**
 - **What are you willing to give up, eg., Global Hawk?**
 - **Is there a home for your “product” in warfighting doctrine or concept of operations, eg., Active Denial System?**
 - **Can you handle a proprietary product, eg., Predator?**
 - **Can you afford to proliferate your “one-off” capability, eg., Space Surveillance Telescope?**
 - **Can you handle concurrent production and development / integration, eg., ISR payloads?**



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Impediments

- **Poor warfighter advocacy**
- **Poorly understood concept of operations**
- **Competition for resources**
- **New Start and reprogramming rules**
- **Pressure for a competitive acquisition**



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What Leads to Success?

- **Warfighter support at the joint level**
- **All four Congress defense committees like it**
- **Technology ready requiring little but integration**
- **Scale leads to modification to an existing mature platform**
- **Integration onto platform fairly straightforward**



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The Greater Cycle Time Issue

- **Preparation is the key**
 - **Robust developmental planning**
 - **Firm requirements blocked to facilitate additions/changes**
 - **Closed loop translation of requirements to contract**
 - **High Confidence Criteria: Reqmts, Funding, TRL, MRL, Risk**
 - **Budget discipline**
 - **Off-ramps to facilitate surprises**
 - **In execution**
 - **Strong awareness of baselines, schedule, critical path, contractor performance**
 - **Healthy communications open to exposure of problems**
 - **Willingness to bring intellectual resources to bear**
-

What It All Comes Down to...

Our Vision:

- **War-winning capabilities ...on time,
on cost**





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Integrity - Service - Excellence

Topic for the Panelists:

“[Your thoughts on] Reducing Acquisition Cycle-Time in Technology Insertion”

Well, my main thought is ...

**I'm not sure you can significantly
accelerate**

technology insertion

- and I'm not you should

The Myth of Rapid Product Cycles in the Commercial World

- **Years to Practical Introduction of Truly New Products:**
 - Commercial Jet Aircraft > 25 yrs
 - Xerography > 20 yrs
 - Solid State Electronics > 15 yrs
 - Personal Computer > 15 yrs ?
 - Cell Phone > 15 yrs?
- **New products/capabilities are a marriage of Science and Engineering
- and infrastructure**

The Lure of the Silver Bullet

- **America loves the idea of “game changing” technology, but ...**
- **To be useful, any technology solution must work in the broad, complex modern battlespace**
 - Pervasive enough to matter
 - Compatible with other systems
 - Supportable – “if you can’t fix it, it won’t help much”
- **Modern warfare is largely a logistics exercise**
 - Consumables dominate the battle space more so than technology

Some Considerations

- **Unrealistic expectations can frustrate the development process**
 - Requirements need to be focused - and constrained
- **Supporting technologies matter - a lot**
 - Design approach must realistically consider these
- **Producability can be the Achilles heel**
 - Manufacturing processes must be able to replicate the system efficiently
 - Otherwise its just a laboratory curiosity
- **Effective employment is the end objective**
 - Combat troops are typically not scientists
 - Must be able to “feed it and fix it” in the Field

So I remain skeptical ...but if you must try

- **Agree on the operational and technology alignment at the highest level**
- **Assign an expert program team and let them make the necessary trades**
 - Requirements
 - Design approach
 - Manufacturability
 - Supportability in the Field
- **And, oh yes, realistically resource the project**